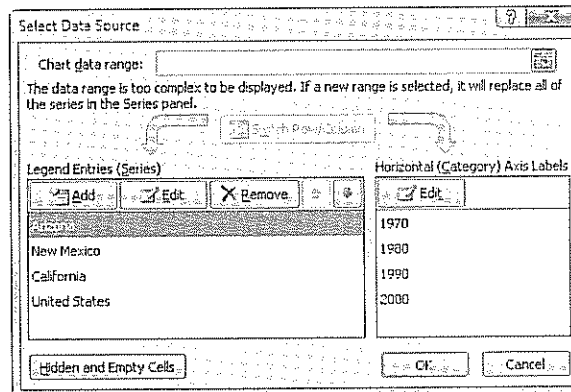


1. Click the chart. Excel will display the three Chart Tools ribbon tabs.
2. On the Design ribbon, click the Select Data icon. Excel displays the Select Data Source dialog box.
3. Click any series name in the Legend Entries list. Use the Up or Down arrow icons to re-order the series in the list (see Figure 22.3).
4. Repeat step 3 to resequence additional series.
5. Click OK to accept the changes. Note: Live Preview does not work with this dialog box. You must click OK before the changes are shown in the chart.

**Figure 22.3**  
Resequence the  
series order using  
this dialog box.



## SELECTING A CHART TYPE

When you create a new chart, Excel lets you select from 73 chart types in 14 categories (although a significant number of these choices are minor variations of others in the same category). Excel 2007 does away with the gallery of 20 built-in custom chart types. Instead, Excel 2007 offers 5 to 15 built-in custom layouts for each chart type. The type of data you're planning to plot usually dictates which type of chart you should choose.

## CHOOSING A STANDARD CHART TYPE

When you use the Insert tab to create a chart, the first step is to specify what type of chart you want to create. After you create a chart, you can easily change it to a new type; right-click the chart area or plot area and select Change Chart Type, or click the Change Chart Type button on the Design tab of the ribbon. The following sections discuss all the standard Excel chart types and describe how you can best use them.

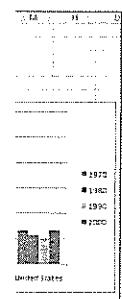
### COLUMN

This type of chart shows a comparison between values in one or more series, often over time as shown in Figure 22.4. This chart works best for shorter series of data. It works well to track 10 data points, but not to illustrate 1000 data points. For example, you can show how your company's sales compare with its competitors over the past five years. Stacked column charts further divide the total for each column, so you can also measure how each

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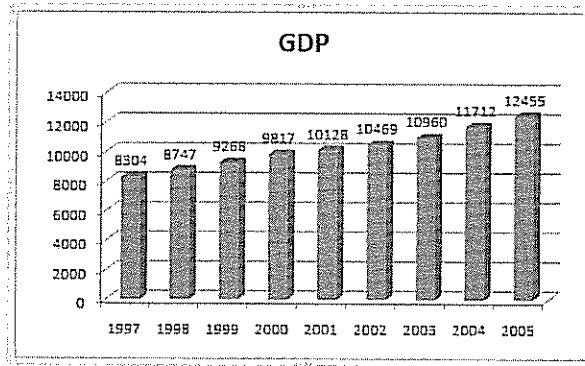
What do you do if  
ay the series in a dif-  
first, or with dates in  
ne worksheet, you

geographic region performed for each company. Select a column chart when you want to show comparisons between different data points, especially those that change over time.

**Do:** use the chart to show trends over time, especially when you have few data points.

**Don't:** use this chart type if each series includes so many data points that you'll be unable to distinguish individual columns. Don't use the chart if the magnitude of each series is vastly different.

**Figure 22.4**  
Column charts are good for short series of time-oriented data.



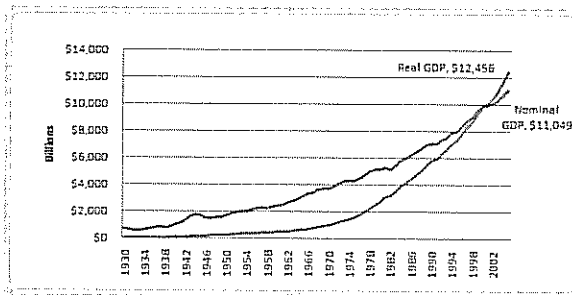
## LINE

This chart type displays a trend, or the relationship between values over a time period. For example, Figure 22.5 plots 75 years' worth of data. The individual points flow into a smooth line where you can see the rate of change.

**Do:** select a line chart when you have many data points to plot and want to show a trend over a period of time.

**Don't:** use this chart type when you're trying to show the relationship between numbers without respect to time, and when you have only a few data points to chart.

**Figure 22.5**  
Line charts are most useful for showing trends over a period of time.



## PIE

Pie charts show the relative size of all the parts in a whole—for example, the ethnic composition of a city. Pie charts have no x-axis or y-axis, and only one data series can be plotted.



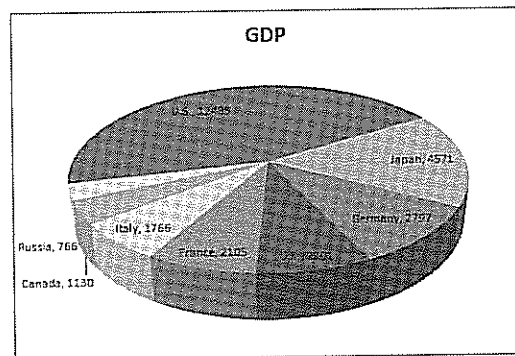
Typically, your data will be sorted with the largest numbers appearing first. This might cause the smaller slices to appear near the back edge of the pie. Right-click the pie, and choose Format Data Series. You can then change the Angle of First Slice to bring the smaller pie slices to the front of the chart.

Use Layout, Data Labels, More Data Label Options to specify how each slice should be labeled. In Figure 22.6, each pie slice shows the category name and value. Other options include showing the percentage for each pie slice.

**Do:** use pie charts when you have only a few numbers to chart and want to show how each number contributes to the whole.

**Don't:** use this chart type when your data series includes many low numbers that contribute a very small percentage to the total. In this case, individual pie slices will be too small to compare.

**Figure 22.6**  
Pie charts are most useful for showing how each number contributes to the whole.



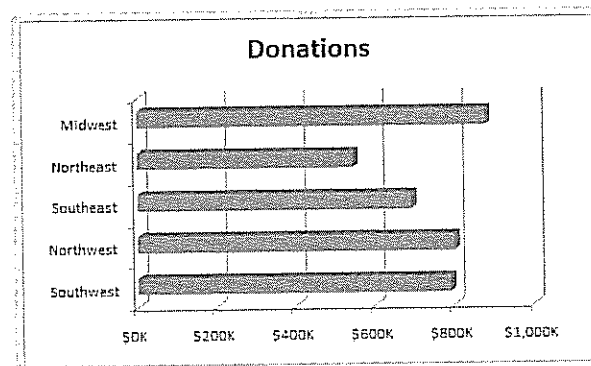
## BAR

Think of a bar chart as a column chart turned on its side, with values along the horizontal axis and categories on the vertical axis. It deemphasizes time comparisons and highlights winners and losers. Figure 22.7, for example, graphically illustrates how well each region has performed in a competition where the goal is to hit \$1,000,000 in donations.

**Do:** use bar charts to compare a small number of data points.

**Don't:** use bar charts when there are so many data points that the bars will blend together.

**Figure 22.7**  
Bar charts highlight winners and losers. In this example, it is easy to see which region is in the lead.



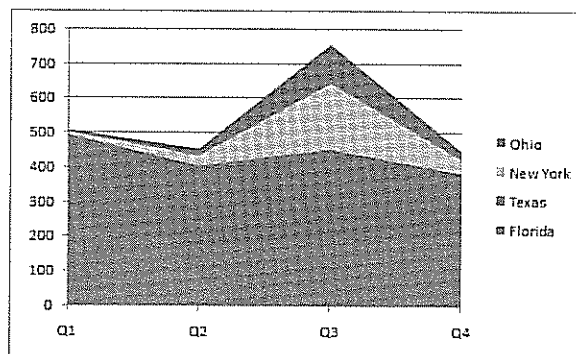
### AREA

This chart type shows lines for parts of a series, adding all the values together to illustrate cumulative change. Unlike line charts, which emphasize the rate of change, area charts show the amount and magnitude of change. The area chart in Figure 22.8, for example, shows how much each division of a pool chemical company contributes to total profits over the course of a year.

Do use area charts to highlight the magnitude of change. The charts work well with data organized by time. Like line charts, area charts can handle many points of data.

Don't use an area chart to compare series that on a non-cumulative basis. There is a good chance that the series plotted in front will obscure the data points for the series plotted in back.

**Figure 22.8**  
Area charts graphically illustrate cumulative changes—this example shows the year-long contribution of four regional divisions.

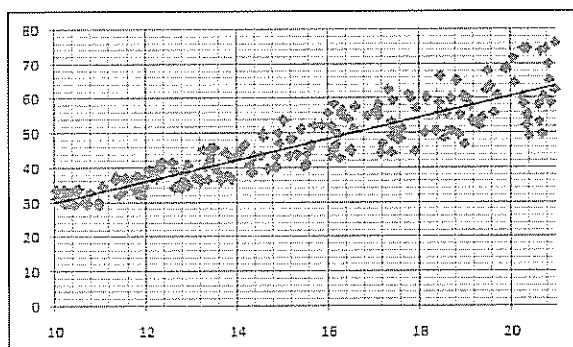


### XY (SCATTER)

Use a scatter chart to show correlations between different series of values when the element of time is unimportant—usually used for scientific analyses. For example, plotting daily high temperatures and ice cream sales over the course of a year will no doubt show clusters of high sales on hot days. Figure 22.9 shows a scatter chart that shows the results of scientific trials on various samples. Note the use of a trendline. You can create charts that plot two groups of numbers as one series of X,Y coordinates; this is the principle behind the price-performance charts you sometimes see in computer magazines. The correct arrangement of data on the worksheet is crucial when creating this chart type. The first column of data should contain your independent (x) values. Additional columns would contain the dependent (y) values.

When you create a scatter chart, the first column of your data range should contain the values to be plotted along the x-axis.

**Figure 22.9**  
Scatter charts help to illustrate the results of scientific trials. This chart shows increased variability as the x value increases.



### STOCK

Four built-in chart types make tracking open/high/low/close prices over time possible, as in the example in Figure 22.10. Combination chart types in this category enable you to plot volume traded as well. You also can adapt these chart types for scientific use, to show high-low values in experimental data. When choosing one of these chart types, your data columns must be in the exact order to match the chart type. The four possible stock charts are

High—Low—Close

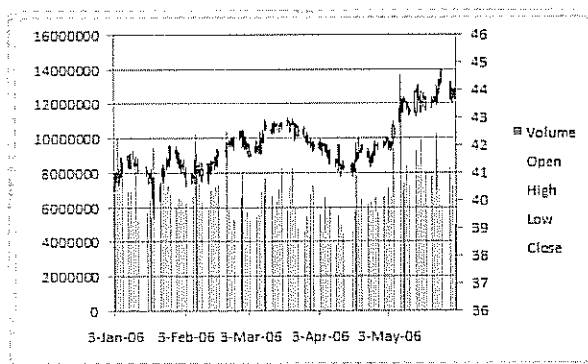
Open—High—Low—Close

Volume—High—Low—Close

Volume—Open—High—Low—Close (see Figure 22.10)

If you attempt to create this chart with the wrong number of columns, an Information box will appear, advising you of the proper sequence of the columns.

**Figure 22.10**  
Each line in this stock chart shows the volume, open, high, low, and closing prices for a selected ticker symbol on a specific day.



## SURFACE

Select this chart type to add a topographic layer over a column or area chart.

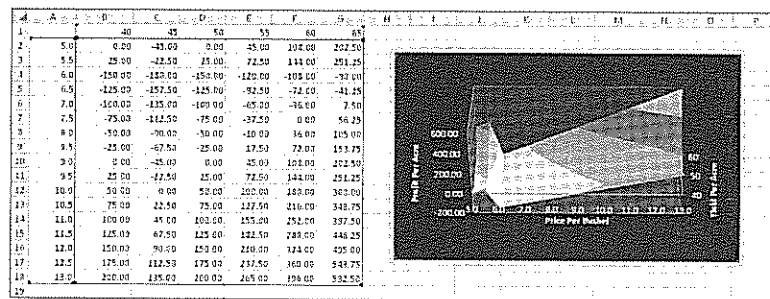
A surface chart shows a three-dimensional surface that connects a set of data points. Use this chart when you want to find optimum combinations between two sets of data. The colors in a surface chart indicate areas that contain a similar range of values.

When setting up a surface chart, your left column should contain values of one independent variable that will be plotted along the x-axis. Your top row should contain values of another independent variable that will be plotted along the y-axis. The intersection of each row and column should contain the height of the surface for those two points. Figure 22.11 shows the dataset and the resulting surface chart.

Instead of assigning a color to each series, this chart type assigns different colors to similar values. The result resembles a topographic map, which can be used to show relationships among large amounts of data that might otherwise be hard to see.

**Do:** use the 3D Rotation icon on the Layout ribbon to turn this chart to provide the best view of the hills and valleys in the chart.

**Figure 22.11**  
The surface chart shows a continuous function based on an x & y variable.



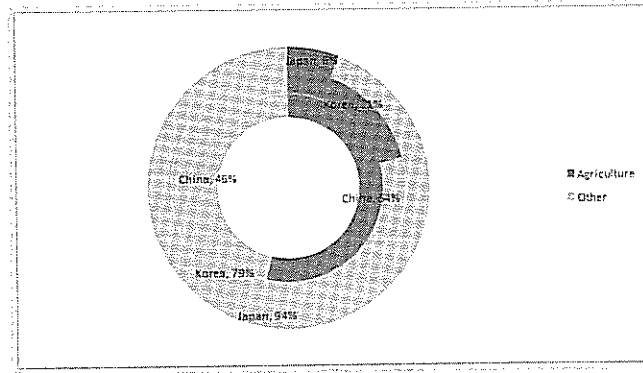
## DOUGHNUT

The doughnut chart is similar to a pie chart, except that it can contain more than one data series. Each ring of the doughnut chart represents a data series.

**Do:** use a doughnut chart to compare pie charts from a few different entities.

**Don't:** rely on Excel to accurately pick up the correct series name from your dataset. You will have to use the Select Data icon on the Design ribbon and edit the individual series names. In Figure 22.12, the chart was customized to show the series name and percentage on each piece of the doughnut chart.

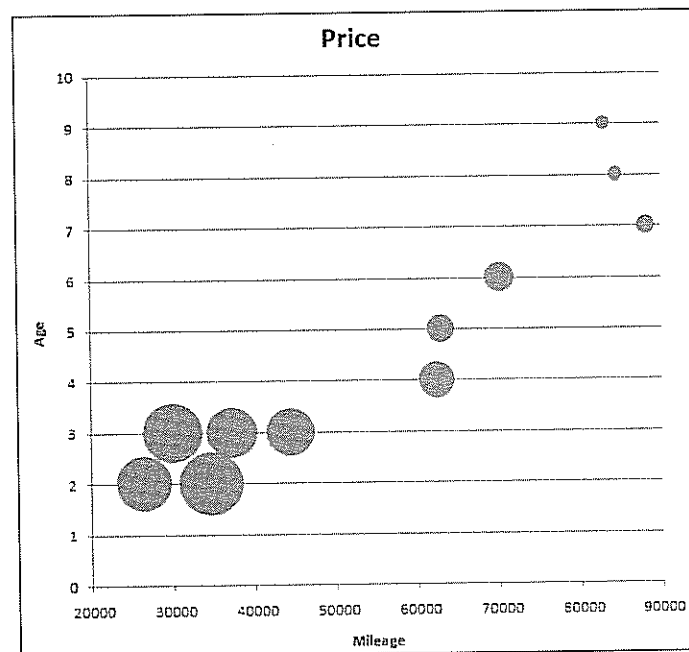
**Figure 22.12**  
The doughnut chart compares pie charts for several different series.



### BUBBLE

Bubble charts are similar to scatter charts, except they contain three series of data rather than two. Instead of placing a uniform-sized dot at the point where each pair of x- and y-values intersect, the data markers are bubbles whose size is determined by the values in a third series (see Figure 22.13). Bubble charts often are used to present financial or market research information.

**Figure 22.13**  
The size of the circle represents the relative asking price for used cars in the morning newspaper.



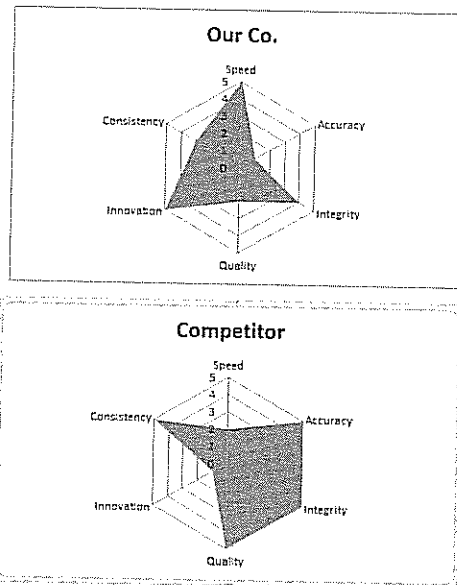
### RADAR

Each category in a radar chart has its own value axis that extends from the center of the chart.

Use this chart to graphically illustrate a rating along several performance areas. Ideally, your performance is ranked on a 1–5 point scale. A review with all 5-point ratings would show a radar chart with the surface area extending to the end of the chart for all measures. Any unfilled gaps in the chart show areas that need improvement.

In Figure 22.14, your company is ranked high in speed, but low in accuracy. Your competitor is slow but accurate.

**Figure 22.14**  
A radar chart shows  
gaps in performance.



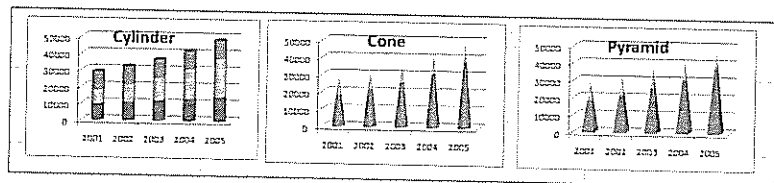
#### CYLINDER/CONE/PYRAMID

For the most part, these are simply glitzy versions of standard 3D column and bar charts. You will find them as subtypes in the Column chart category. Options enable you to control whether each data marker tapers to a point or is tapered to the highest value in the series. Figure 22.15 shows a Cylinder, Cone, and Pyramid chart type.

#### CAUTION

The inherent problem with either the Cone or Pyramid chart types is that the later series, appearing at the narrower point of the pyramid, is given less volume. This creates a visual bias that is not representative of the underlying data. If you are thinking of using a Cone or Pyramid chart—don't.

**Figure 22.15**  
The Cone and Pyramid  
charts are particularly  
misleading.





areas. Ideally, your  
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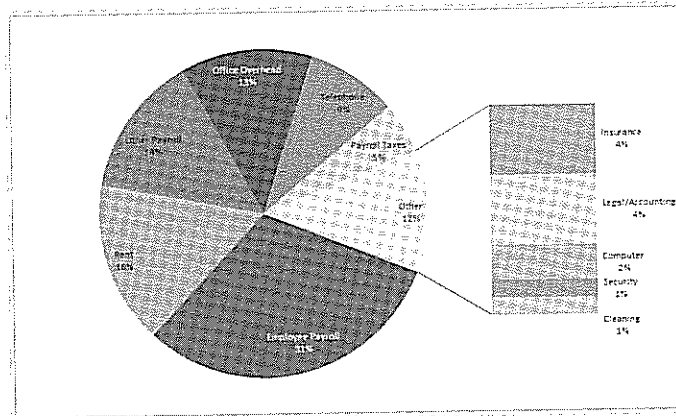
## USING COMBINATION CHARTS

It is possible in Excel to create charts that contain a combination of chart types. The Line-Column chart type, for example, lets you format one series of data along a line and another in columns. You can create this chart by creating a standard column chart, then changing the chart type of one series to a line. This type of chart is useful for showing two different measures on the same chart. For example, you might plot production units and production quality. The units could be plotted as a column chart and the quality as a line chart.

Another combination chart is a stock chart that lets you plot high, low, and closing stock prices on a line, with trading volume in columns. In this case, you use two value axes, one to the left of the chart area and the other on the right.

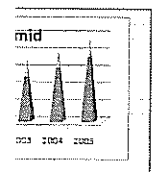
The Pie-of-Pie and Pie-of-Bar combination charts, both available as subtypes in the Pie category, offer a clever solution when you have so many data points that your chart is difficult to read. As the example in Figure 22.16 shows, you can use a Pie-of-Bar chart to combine several smaller slices into a single large slice, and then show the detail in a separate chart connected to the original.

**Figure 22.16**  
Use a Pie-of-Bar chart  
to keep small slices of  
the pie from getting  
lost.



and bar charts.  
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To create either of these combination chart types, use the Insert Pie Chart drop-down list and choose the appropriate chart subtype from the list. To adjust which slices of the pie will go in the secondary (pie or bar) chart, right-click the pie and select Format Data Series. Then click the Series Options category and adjust the settings as shown in Figure 22.17.

Using the Split Series By list, you can tell Excel to use a specific number of slices, or all slices below a certain value or percentage.

To move specific slices from the primary to the secondary chart, select the Custom option in the Split Series By drop-down list. Then, while the dialog is still displayed, click a pie slice behind the dialog box. Use the Point Belongs To drop-down list to move the selected slice to the First Plot or Second Plot.